



#15

Patent Docket No.: 42.P3495C3

Patent

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Patent Application of:)
Michael Barrow, et al.) Examiner: Not Yet Assigned
Application No.: 09/925,835) Art Unit: 2841
Filed: August 7, 2001)
For: PERIMETER MATRIX BALL)
GRID ARRAY CIRCUIT PACKAGE)
WITH A POPULATED CENTER)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Dear Sir:

Enclosed is a copy of Information Disclosure Citation Form PTO/SB/08 together with a copy of the document cited on that form.

Also attached are Forms PTO-1449 and PTO-892 from the parent application filed on March 22, 1999 (Application No. 09/274,430). Pursuant to 37 C.F.R. § 1.98(d), copies of the referenced art are not being provided herewith since they were previously sent to and/or provided by the Patent and Trademark Office.

First-Class Certificate of Mailing

I hereby certify that this correspondence is being deposited with the United States Postal Service as first-class mail with sufficient postage in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia, 22313-1450 on:

August 12, 2004

Date of Deposit

Linda K. Brost

Name of Person Mailing Correspondence

Linda K. Brost

Signature

August 12, 2004

Date

It is respectfully requested that the cited documents be considered in the 1.53(b) continuation application filed herewith and that the enclosed copy of Information Disclosure Citation Form PTO/SB/08 be initialed by the Examiner and returned to Applicant.

Pursuant to 37 C.F.R. § 1.97, the submission of this Information Disclosure Statement is not to be construed as a representation that a search has been made and is not to be construed as an admission that the information cited in this statement is material to patentability.

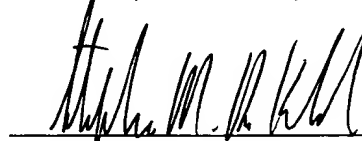
Pursuant to 37 C.F.R. § 1.97, this Information Disclosure Statement is being submitted under one of the following (as indicated by an "X" to the left of the appropriate paragraph):

- X 37 C.F.R. §1.97(b).
- 37 C.F.R. §1.97(c). If so, then enclosed with this Information Disclosure Statement is one of the following:
- A statement pursuant to 37 C.F.R. §1.97(e) or
- A check for \$180.00 for the fee under 37 C.F.R. § 1.17(p).
- 37 C.F.R. §1.97(d). If so, then enclosed with this Information Disclosure Statement are the following:
- (1) A statement pursuant to 37 C.F.R. §1.97(e); and
 - (2) A check for \$180.00 for the fee under 37 C.F.R. §1.17(p) for submission of the Information Disclosure Statement.

If there are any additional charges, please charge Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP



Stephen M. De Klerk
Reg. No. 46,503

Dated: August 12, 2004

12400 Wilshire Blvd.
Seventh Floor
Los Angeles, CA 90025-1026
(408) 720-8300

Substitute for Form 1449/PTO <h1 style="text-align: center;">INFORMATION DISCLOSURE</h1> <h2 style="text-align: center;">STATEMENT BY APPLICANT</h2> <p style="text-align: center;"><i>(use as many sheets as necessary)</i></p>				Complete if Known	
				Application Number	09/925,835
				Filing Date	August 7, 2001
				First Named Inventor:	Michael Barrow
				Art Unit	2841
				Examiner Name	Not Yet Assigned
				Attorney Docket Number	42.P3495C3
Sheet	1	of	2		

Application Number	09/925,835
Filing Date	August 7, 2001
First Named Inventor:	Michael Barrow
Art Unit	2841
Examiner Name	Not Yet Assigned
Attorney Docket Number	42.P3495C3

Attorney Docket Number	42.P3495C3
------------------------	------------

[illegible]

Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³ Number ⁴ Kind Code ⁵ (if known)				

Examiner Signature		Date Considered	
-----------------------	--	-----------------	--

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SENT FEES OR COMPLETED FORMS TO THIS ADDRESS.

SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Based on Form PTO/SB/08A (08-03) as modified by BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP on 09/10/03.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Complete if Known

Application Number	09/925,835
Filing Date	August 7, 2001
First Named Inventor:	Michael Barrow
Art Unit	2841
Examiner Name	Not Yet Assigned
Attorney Docket Number	42.P3495C3

Sheet	2	of	2
-------	---	----	---

Examiner
Initials*Cite
No¹

Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published

 T^2

Nikkei Microdevices. "Retention tape becomes BGA with holes." 1995, page 17.

Examiner
Signature

Date
Considered

¹Applicant's unique citation designation number (optional). ²Applicant is to place a check mark here if English Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SENT FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.


 OIPF JC82 OFFICE OF PATENT & TRADEMARKS
 DEC 09 1999
 are required to respond to

PTO/SB/C6A (10-95)
Approved for use through 10/31/99. OMB 0651-0031
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
collection of information unless it displays a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet

1

of

2

Complete if Known

Application Number

09/274.430

Filing Date

March 22, 1999

First Named Inventor

Michael Battow

Group Art Unit

2814

Examiner Name

Attorney Docket Number

042390.P3495C2

U.S. PATENT DOCUMENTS

[illegible]

FOREIGN PATENT DOCUMENTS

[illegible]

Examiner
Signature

Date _____

Considered

Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO:** Assistant Commissioner for Patents, Washington, DC 20231.



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

2

042390.P3495C2

[illegible]

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO:** Assistant Commissioner for Patents, Washington, DC 20231.



10/2000

U.S. PATENT DOCUMENTS

Exam. Initial*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (If known)			
		4,887,148		Mu	12/12/1989	
		5,216,278		Lin et al.	6/1/1993	
		5,285,352		Pastore et al.	2/8/1994	
		5,355,283		Marrs et al.	10/11/1994	
		5,367,435		Andros et al.	11/22/1994	
		5,450,283		Lin et al.	9/12/1995	
		5,490,324		Newman	2/13/1996	
		5,506,756		Haley	4/9/1996	
		5,650,660		Barrow	7/22/1997	
		5,686,699		Chu et al.	11/11/1997	
		4,688,170		Waite et al.	8/18/1987	
		5,367,435		Andros et al.	11/22/1994	

FOREIGN PATENT DOCUMENTS

Exam. Initial*	Cite No. ¹	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Office ³	Number ⁴	Kind Code ⁵ (If known)				

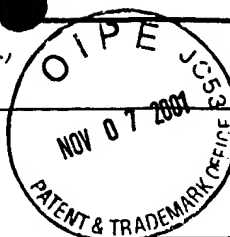
Examiner Signature	DAVID FOSTER	Date Considered	2/11/2002
--------------------	--------------	-----------------	-----------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard S.3). ⁴For Japanese patent documents, the indication of the year of reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Page No. 17



Attorney Docket No..
042390P3495C2

Application Number:
09/274,430

Page 2 of 11

First Named Inventor:
Michael Barrow

Filing Date:
March 22, 1999

OTHER ART - NO PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	Translation ²
<i>JB</i>		1991 Proceedings, 41 st Electronic Components & Technology Conference, May 11-16, 1991, Atlanta, Georgia	
		Bruce Freyman et al., "Surface Mount Process Technology for Ball Grid Array Packaging, Amkor Electronics Inc., Tempe, Arizona, pgs. 81-85	
		Bruce Freyman et al., "Surface Mount Process Technology for Ball Grid Array Packaging"; JUNICHO SHIMIZU, "Plastic Ball Grid Array Coplanarity" Citizens Watch Co, Tokyo Japan, Surface Mount International Conference & Exposition, San Jose, California, Aug 29-Sept 2, 1993, pgs. 81-91	
		Dave Hattas, "BGAs Face Production Testing", Advanced Packaging, Summer 1993, pgs. 44-46	
		Electronic Packaging & Production: Concurrent Engineering for Packaging, Fabrication & Assembly, Articles, March 1993, Vol. 3, No. 33	
		Julie Houghten, "Takes on QFPs" Advanced Packaging, Winter 1993, pgs 38-39	
		Randy Johnson et al., "Ball Grid Array Technology: A Feasibility Study of Ball Grid Array Packaging", Nepcon Conference, Proceeding of the Technical Program, June 14-17, 1993 Boston Massachusetts, pgs 411-430	
		Electronic Packaging & Production: Concurrent Engineering for Packaging, Fabrication & Assembly, Articles, May 1992	
		Andrew Mawer et al., "Calculation of Thermal Cycling and Applications Fatigue Life of the Plastic Ball Grid Array (BGA) Package", Proceeding of the 1993 International Electronics Packaging Conference, September 12-15, 1993 San Diego, California, vol. 2, pgs. 718-730	
		Amkor BGA Packaging, "Taking the World by Storm", Amkor Electronics, Chandler, AZ	
		Leo Anderson et al., " Solder Attachment Analysis of Plastic BGA Modules", Surface Mount International, San Jose, CA, August 1994, pgs. 189-194	
		Dr. Abbas I. Attarwala et al., "Failure Mode Analysis of a 540 Pin Plastic Ball Grid Array", Surface Mount International, San Jose, CA, August 1994, pgs. 252-257	

Examiner Signature	<i>John B. Houghten</i>	Date Considered	<i>09/09/02</i>
--------------------	-------------------------	-----------------	-----------------

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

¹Unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Page No 17

Substitute for Form 1449A/PTO (Modi... (use as many sheets as necessary)	Attorney Docket No.. 042390P3495C2	Application Number: 09/274,430
Page 3 of 11	First Named Inventor: Michael Barrow	Filing Date: March 22, 1999

OTHER ART - NO PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	Translation ²
<i>JB</i>		Surface Mount International Conference & Exposition: Proceedings of The Technical Program, San Jose, CA, Aug 28-Sept 1, 1994	
		C.E. Bauer, "Partitioning and Die Selection Strategies for Cost Effective MCM Designs"; W.E. BERNIER et al., "BGA vs QFP: A Summary of Tradeoffs for Selection of High I/O Components"; A.J. MAWER et al., "Plastic Ball Grid Array Solder Joint Reliability Considerations"; Dr. W.C. Mak et al., "Increased SOIC Power Distribution Capability Through Board Design and Finite Element Modeling", Journal of Surface Mount Technology, October 1994	
		W.E. Bernier et al., "BGA vs QFP: A Summary of Tradeoffs for Selection of High I/O Components", Surface Mount International Conference & Exposition, Proceedings of The Technical Program, San Jose, CA, Aug 30-Sept 1, 1994 pgs. 181-185	
		Marie Cole et al., "Ball Grid Array Packaging", Surface Mount International Conference & Exposition, Proceedings of The Technical Program, San Jose, CA, Aug 30-Sept 1, 1994 pgs. 147-153	
		Electronic Packaging & Production, Articles, vol. 34, No. 12, December 1994	
		Advanced Packaging, "BGAs for MCMs: An Enabling Technology Emerges", Articles, September/October 1994	
		Suzanne Fauser et al., "High Pin Count PBGA Assembly: Solder Defect Failure Modes and Root Cause Analysis", pgs. 169-174	
		InterConnection Technology Articles, September 1993	
		Curtis Hart, "Vias in Pads for Coarse and Fine Pitch Ball Grid Arrays", Surface Mount International Conference & Exposition, Proceedings of The Technical Program, San Jose, CA, Aug 30-Sept 1, 1994	
		L.C. Matthew et al. "Reliability- Area Array Packaging"; Roland Heitmann, "Assembly-A Direct Attach Evolution", Advanced Packing, Microwave RF Packaging, Articles, July/August 1994,	
		Charles L.Hutchins "Understanding Grid Array Packages", Surface Mount Technology Magazine, November 1994, pgs 12-13	
<i>✓</i>		Jennie S. Hwang, "Reliability of BGA Solder Interconnections" Surface Mount Technology Magazine, September 1994, pgs 14-15	

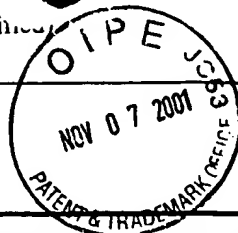
Examiner Signature <i>John F. Vozick</i>	Date Considered 09/09/02
---	-----------------------------

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

¹Unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office.

Page No 17



First Named Inventor:
Michael Barrow
Filing Date:
March 22, 1999

OTHER ART - NO PATENT LITERATURE DOCUMENTS

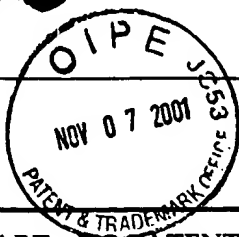
Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume, issue number(s), publisher, city and/or country where published	Translation ²
JLV		J. Lau et al., "No Clean Mass Reflow of Large Plastic Ball Grid Array Packages" Printed Circuit Interconnection Federation, Circuit World, Vol. 20, No. 3, March 1994, pgs 15-22	
		John H. Lau et al. "No Clean Mass Reflow of Large Plastic Ball Grid Array Packages", Journal of Surface Mount Technology, pgs 3-14, July 1994	
		Charles E. Bauer, Ph.D. et al., "Partitioning and Die Selection for Cost Effective MCM Designs", pgs 4-9; W.E. Bernier et al., " BGA vs QFP: A Summary of Tradeoffs for Selection of High I/O Components", pgs 10-15; Andrew J. Mawer et al. "Plastic Ball Grid Array Solder Joint Reliability Considerations", pgs 16-32; Dr. W.C. Mak et al. "Increased SOIC Power Dissipation Capability Through Board Design and Finite Element Modeling", pgs 33-42, Journal of Surface Mount Technology, October 1994	
		Michael Dobers et al., "Design-Low Cost MCMs", pgs 28-32; "Ken Gilleo, "Materials-Electronic Polymers, pgs 37-42"; Robert C. Marrs et al, "Market Trends-BGAs for MCMs, pgs 48-52, Advanced Packaging Magazine, BGAs for MCMs, September/October 1994	
		L. C. Mathew et al. "Reliability-Area Array PackingZ", pgs 91-94; "Assembly-A Direct Attach Evolution", pgs 95-99, Advanced Packing Magazine, Microwave RF Packaging, July/August 1994	
		Andrew J. Mawer et al, "Plastic Ball Grip Array Solder Joint Reliability Considerations", pgs 16-32, Journal of Surface Mount Technology, October 1994	
		Tony Mazzullo, "How IC Packages Affect PCB Design", Surface Mount Technology Magazine, Nepcon West '95, February 1995, pgs 114-116	
		Joel Mearig, "An Overview of Manufacturing BGA Technology", Proceeding of the Technical Program, Nepcon West '95 Conference, Feburary/March 1995, Anaheim, CA, pgs 295-299	
		Atila Mertol, "Application of the Taguchi Method on the Robust Design of Molded 225 Plastic Ball Grid Array Packages", IEEE Transactions on Components, Packaging, and Manufacturing Technology, Part B: Vol. 18, No. 4, November 1995, pgs 734-743	
		Shailesh Mulgaonker et al., "An Assessment of the Thermal Performance of the PBGA Family", IEEE Transactions on Components, Packaging, and Manufacturing Technology, Part A. Vol. 18. No 4., December 1995, pgs739-748	
	Electronic Design Magazine, April 17, 1995, Various Articles.		
		Reader Service: Hewlett Packard, Actel, Mini-Circuits; Electronic Design, April 1995, Vol. 43, No. 8; Nikkei Microdevices Magazine, Various Articles	

Examiner Signature	<i>John B. Vayns</i>	Date Considered	09/09/02
--------------------	----------------------	-----------------	----------

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

¹Unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.

Page No. 17



Attorney Docket No.:
042390P3495C2

Application Number:
09/274,430

First Named Inventor:
Michael Barrow
Filing Date:
March 22, 1999

OTHER ART - NO PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	Translation ²
BV		Nikkei Microdevices, March 1995, Various Articles	
		John H. Lau, "Ball Grid Array Technology" Publication, pgs 1-636	
		Electronic Packaging & Production Literature Review, February 1995	
		LSI Logic Package Selector Guide, 1994-1995	
		Robert Marrs et al., "Recent Technology Breakthroughs Achieved with the New Super BGA Package", Proceeding of the Technical Conference, 1995 International Electronics Packaging Conference, San Diego, CA September 1995, pgs 565-576	
		Jonathan L. Houghten, "Plastic Ball-Grid Arrays Continue to Evolve", Electronic Design Magazine, February 1995, 141-146	
		Wayne Huang et al. "Electrical Characterization of PBGA for Communication Applications by Simulation and Measurement" Proceeding of the Technical Program, Nepcon West '95, Conference February/March 1995, Anaheim, CA, pgs 307	
		Greg Reed, "NEPCON Highlights Thriving Industry"; Jenny S. Hwang, "A Hybrid of QFP and BGA Architectures", Surface Mount Technology Magazine, February 1995	
		Microprocessor Report, November 1995, Vol. 9, No. 15, Michael Slater "Intel Boosts Pentium Pro to 200 MHz", "AMD Buys NexGen to Boost x86 Position"; Linly Gwennap "Integrated PA-7300LC Powers HP Midrange", "UltraSparc to Pick Up Speed in 1996"; Jim Turley "StrongArm Punches Up ARM Performance"; Brian Case "First Trimedia Chip Boards PCI Bus"; and Mike Johnson "RISC-like Design Fares Well for x86 CPUs	
		Linley Gwennap "Intel's P6 Bus Designed for Multiprocessing" Microprocessor Report, Vol. 9, No. 7, May 1995, pgs 2-6	
		IPC National Ball Grid Array Symposium, Supplement to the Proceedings, March 1995, Dallas TX	
		T. Kawahara et al. "Ball Grid Array Type Package by Using of New Encapsulation Method", Proceedings of the 1995 International Electronics Packaging Conference, San Diego, CA, September 1995	

Examiner Signature	<i>John B. [Signature]</i>	Date Considered	09/09/02
--------------------	----------------------------	-----------------	----------

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

¹Unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Paper No. 17

Substitute for Form 1449A/PTO (Modi. (use as many sheets as necessary))		Attorney Docket No. 042390P3495C2	Application Number: 09/274,430
Page 6 of 11		First Named Inventor: Michael Barrow	
		Filing Date: March 22, 1999	
OTHER ART - NO PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	Translation
JW		John U. Knickerbocker et al., "Materials: Ceramic BGA" Advanced Packaging Magazine, January/February 1995, pgs 20-25	
		Gary Kromann et al., "A Hi-Density C4/CBGA Interconnect Technology for a CMOS Microprocessor", Proceeding of the Technical Program, Nepcon West '95 Conference, February/March 1995, Anaheim, CA, pgs 1523-1529	
		Balwant S. Lall et al., "Methodology for Thermal Evaluation of Multichip Modules" IEEE Transactions on Components, Packaging, and Manufacturing Technology Part A, December 1995, Vol. 18, No. 4, pgs 758-764	
		Steve Rooks, "X-Ray Inspection of Flip Chip Attach Using Digital Tomosynthesis" Surface Mount International Conference & Exposition, Proceedings of the Technical Program, San Jose, CA, August/September 1994, pgs 195-202	
		Paul Mescher et al., "A Practical Comparison of Surface Mount Assembly for Ball Grid Array Components" Surface Mount International, Proceedings of the Technical Program, San Jose, CA, August/September 1994, pgs 164-168	
		Gil Olachea, "Managing Heat: A Focus On Power IC Packaging" Electronic Packaging & Production, November 1994, pgs 26-28	
		C. Ramirez et al., "Fatigue Life Comparison of the Perimeter and Full Plastic Ball Grid Array, pgs 258-266	
		Steve Rooks, "X-Ray Inspection of Flip Chip Attach Using Digital Tomosynthesis" Surface Mount International Conference & Exposition, Proceedings of the Technical Program, San Jose, CA, August/September 1994, pgs 195-202	
		Richard E. Sigliano, "Market Trends: Using BGA Packages", Advanced Packaging, March/April 1994, pgs 36-40	
		David B. Walshak, Jr., "Thermal Modeling of a Multichip BGA Package" Proceedings of the Technical Program, Nepcon West Conference, February/March 1994, Anaheim CA, pgs 1266-1276	
		David Walshak et al., "BGA Technology: Current and Future Direction for Plastic, Ceramic and Tape BGA's, MCC, Austin TX, pp 157-163	
		J. S. Huang, "Reliability of BGA Solder Interconnections" Electronic Packaging & Production, Surface Mount, Vol. 8, No. 9, September 1994, pp 14-15	


Examiner Signature	<i>John B. Vignath</i>	Date Considered	09/09/02
-----------------------	------------------------	--------------------	----------


*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

¹Unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Paper No. 17

Substitute for Form 1449A/PTO (Mod.) (use as many sheets as necessary)		Attorney Docket No. 042390P3495C2	Application Number: 09/274,430
Page 7 of 11		First Named Inventor: Michael Barrow	Filing Date: March 22, 1999
OTHER ART & PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	Translation ²
		Michael A. Zimerman "High Performance BGA Molded Packages for MCM Application" Surface Mount International Conference & Exposition, Proceedings of the Technical Program, San Jose, CA, August 1994, pp 175-180	
		Gilbert Zweig, "BGAs: Inspect the Process, Not the Product", Electronic Packaging & Production Magazine, The Technology of Surface Mount, August 1994	
		Advanced Packaging, March/April 1995	
		Seung-Ho Ahn et al., "Popcorn Phenomena in a Ball Grid Array Package" IEEE Transactions on Components, Packaging, and Manufacturing Technology-Part B: Advanced Packaging, Vol. 18, No. 3, August 1995, pp 491-496	
		Rajen Chanchani et al., "Reliability: Mini BGA", Advanced Packaging, May/June 1995, pp 34-37	
		Juan Burgos et al., "Achieving Accurate Thermal Characterization Using a CFD Code-A Case Study of Plastic Packages", IEEE Transactions on Components, Packaging, and Manufacturing Technology-Part A, Vol. 18, No. 4, December 1995, pp732-738	
		"Joint Standard on BGA" Advanced Packaging, May/June 1995, pp 16	
		David Maliniak, "The Maturing of the BGA", Electronic Design, April 1995, pp 20	
		Electronic Packaging & Production, March 1995	
		J. Ewanich et al., "Development of a Tab (TCP) Ball Grid Array Package", Proceedings of the Technical Conference, 1995 International Electronics Packaging Conference, San Diego, CA, September 1995, pp 588-594	
		Mark Ferguson, "Ensuring High-Yield BGA Assembly" Circuits Assembly, February 1995, pp 54-56	
		Atila Mertol, "Application of the Taguchi Method on Robust Design of Molded 225 Plastic Ball Grid Array Packages", IEEE Transactions on Components, Packaging, and Manufacturing Technology-Part B: Advanced Packaging, Vol. 18, No. 4, November 1995, pp 734-743	

Examiner Signature		Date Considered	09/09/02
--------------------	---	-----------------	----------

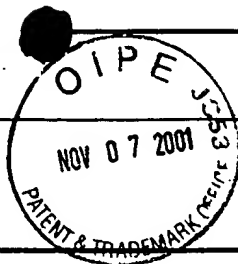
*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

¹Unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Page No. 17

Substitute for Form 1449A/PTO (Modi. (use as many sheets as necessary))	Attorney Docket No. 042390P3495C2	Application Number: 09/274,430
Page 8 of 11	First Named Inventor: Michael Barrow	Filing Date: March 22, 1999



OTHER ART - NO PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	Translation ²
JW		Bruce Freyman et al., "The Move to Perimeter Plastic BGA's" Surface Mount International, Proceedings of the Technical Program, San Jose, CA, August 1995	
		Bruce M. Guenin et al., "Analysis of a Thermally Enhanced Ball Grid Array Package", IEEE Transactions on Components, Packaging, and Manufacturing Technology-Part A, Vol. 18, No. 4, December 1995, pp 749-757	
		Curtis Hart, "Vias in Pads" Circuits Assembly, February 1995	
		Gary B. Kromann et al., "Motorola's Power PC 603 and PowerPC 604 RISC Microprocessor: The C4/Ceramic Ball-Grid Array Interconnect Technology", IEEE, 45th Electronic Components & Technology Conference 1995, pp 1-27	
		The Institute for Interconnecting and Packaging Electronic Circuits (IPC), Proceedings of the Technical Conference, October/November 1995, Providence, RI	
		Chris Schmolze et al., "SPICE Modeling Helps Enhance BGA Performance" Electronic Packaging & Production, Vol. 25, No. 1, January 1995	
		Semiconductor Group Package Outlines Reference Guide, Texas Instruments Incorporated, 1995	
		Shailesh Mulgaonker et al., "An Assessment of the Thermal Performance of the PBGA Family", 1995 Proceedings, Eleventh IEEE Semiconductor Thermal Measurement and Management Symposium, pp 17-27	
		Larry Sirois, "Assembly: Dispensing for BGA", Advanced Packaging, May/June 1995, pp 38-41	
		John Tuck, "BGA Technology Branches Out" Circuit Assembly, Vol. 6, No. 2, February 1995	
		H. Xie et al., "Thermal Solutions to Pentium Processors in TCP in Notebooks and Sub-Notebooks" 1995 IEEE, pp 201-210	
		Wai-Yeung Yip et al., "Package Characterization of a 313 Pin BGA" Proceedings of the Technical Program, Nepcon West '95 Conference, Anaheim, CA, February/March 1995, pp 1530-1540	

Examiner Signature	<i>John B. Vignati</i>	Date Considered	09/09/02
-----------------------	------------------------	--------------------	----------

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

¹Unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.

Paper No. 12

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Substitute for Form 1449A/PTO (Mod.) (use as many sheets as necessary)		Attorney Docket No. 042390P3495C2	Application Number: 09/274,430
Page 9 of 11		First Named Inventor: Michael Barrow	Filing Date: March 22, 1999
OTHER ART - NO PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume, issue number(s), publisher, city and/or country where published	Translation ²
BV		Ed Zamborsky, "BGAs in the Assembly Process", Circuits Assembly, Vol. 6, No. 2, February 1995, pp 60-64	
		Marie S. Cole et al., "A Review of Available Ball Grid Array (BGA) Packages", Surface Mount Technology Association, Journal of Surface Mount Technology, January 1996, pp 4-11	
		Glenn Dody et al., "BGA Assembly Process and Rework", Surface Mount Technology Association, Journal of Surface Mount Technology, January 1996, pp 39-45	
		Theo I. Ejim et al., "Designed Experiment to Determine Attachment Reliability Drivers for PBGA Packages" Surface Mount Technology Association, Journal of Surface Mount Technology, January 1996, pp30-38	
		Bruce Freyman et al., "The Move to Perimeter Plastic BGAs" Surface Mount Technology Association, Journal of Surface Mount Technology, January 1996, pp 19-29	
		Michael Hundt, "Thermal Enhancements of Ball Grid Arrays", Proceedings of the Technical Program,, Nepcon West '96 Conference, Anaheim, Ca, February 1996	
		Patrick Johnson "Printed Circuit Board Design Guidelines for Ball Grid Array Packages" Surface Mount Technology Association, Journal of the Surface Mount Technology, January 1996, pp 12-18	
		Paul Mescher, "The Evolution of BGA, Advanced Packaging, March/April 1996, pp 16-18	
		Semiconductor Group Packaging Outlines, Texas Instruments, December 1996, Plastic Ball Grid Array	
		E. Jan Vardaman et al., "Worldwide Trends in Ball Grid Array Developments" Proceedings of the Technical Program, Nepcon West '96 Conference, Anaheim, Ca, February 1996	
		"Pad Array Improves Density" Electronic Packaging & Production, June 1993	
		Suzanne Fauser et al., "High Pin-Count PBGA Assembly", Circuits Assembly, February 1995	

Examiner Signature	<i>John B. Vignati</i>	Date Considered	09/09/02
-----------------------	------------------------	--------------------	----------

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

¹Unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Page No. 17

Substitute for Form 1449A/PTO (Mod... (use as many sheets as necessary))		Attorney Docket No. 042390P3495C2	Application Number: 09/274,430
Page 10 of 11		First Named Inventor: Michael Barrow	Filing Date: March 22, 1999
OTHER ART - NO PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume, issue number(s), publisher, city and/or country where published	Translation ²
AB		Michael Barrow, "Perimeter Matrix Ball Grid Array Circuit Package with a Populated Center", International Search Report, PCT/US97/03511, March 1996	
		LSI Logic Corporation, Package Selector Guide, 1991-1995	
		LSI Logic Corporation, Package Selector Guide	
		LSI Logic Corporation, Package Selector Guide, 1994-1995	
		Julian Partridge et al., "Organic Carrier Requirements for Flip Chip Assemblies" Surface Mount Technology Association, Journal of Surface Mount Technology, July 1994, pp 15-20	
		Bruce Freyman et al., "Surface Mount Process Technology for Ball Grid Array Packaging" Surface Mount Technology Association, Journal of Surface Mount Technology, July 1994, pp 27-31	
		Randy Johnson et al., "Thermal Characterization of 140 and 225 Pin Ball Grid Array Packages", Nepcon East '93 Conference, Boston, Ma, June 1993	
		Semiconductor Group Package Outlines Reference Guide, Texas Instruments Incorporated, Plastic Ball Grid Array Drawing, 1995	
		Andrew Mawer et al., "Calculation of Thermal Cycling and Application Fatigue Life of the Plastic Ball Grid Array (BGA) Package", Proceedings of the 1993 International Electronics Packaging Conference, Vol. 2, San Diego, Ca, September 1993	
		Charles E. Bauer, "Partitioning and Die Selection Strategies for Cost Effective MCM Designs" Surface Mount Technology Association, Journal of Surface Mount Technology, October 1994, pp 4-9	
	Andrew J. Mawer et al., "Plastic Ball Grid Array Solder Joint Reliability Considerations", Surface Mount Technology Association, Journal of Surface Mount Technology, October 1994, pp 16-32		
✓		Dr. W.C. Mak et al., "Increased SOIC Power Dissipation Capability Through Board Design and Finite Element Modeling" Surface Mount Technology Association, Journal of Surface Mount Technology, October 1994, pp 33-41	

Examiner Signature	<i>John B. Vignati</i>	Date Considered	09/09/02
-----------------------	------------------------	--------------------	----------

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

¹Unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Page No. 17

Substitute for Form 1449A/PTO (Mod.) (use as many sheets as necessary)		Attorney Docket No. 042390P3495C2	Application Number: 09/274,430
Page 11 of 11		First Named Inventor: Michael Barrow Filing Date: March 22, 1999	
OTHER ART - NO PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume, issue number(s), publisher, city and/or country where published	Translation ²
		Philip E. Rogren, "MCM-L Built on Ball Grid Array Formats", Surface Mount International, Proceedings of the Technical Program, San Jose, Ca, August/September 1994	
		James J. Clementi et al., "Flip-Chip Assembly on CQFP Using No-Clean Processing" Proceedings 1995 International Flip Chip, Ball Grid Array, Tab and Advanced Packaging Symposium, San Jose, Ca, February 1995	
		Andrew Mawerand et al., "Reliable BGAs Take on Extra Routes" Electronic Engineering Times 98, Interconnects & Packaging, Issue 816, September 194	
		Johnathan L. Houghten, "Plastic Ball-Grid Arrays Continue to Evolve", February 6, 1995 issue of Electronic Design, Vol. 43, No. 3, pgs 5, 7, 141-146, Penton Publishing Inc., Cleveland, OH	
		Compaq, "Compaq's Proposed BGA Package for Low Cost High Volume Products" (one page), November 8, 1993	
		LSI Logic, Package Selector Guid 1994-1995, cover page, chapter cover page, pgs 8-27 and 8-31	
		Semiconductor Group Package Outlines Reference Guide, First Edition 1995, cover page and pp 6-20, Arrow Schweber	
		BGA Product Guide Updates, Amkor/Anam, June 1994	
		Steve Liew et al., Fax to Mike Barrow regarding BGA Details, December 21, 1994, pgs 1-2	

Examiner Signature		Date Considered	09/09/92
--------------------	--	-----------------	----------

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

¹Unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Paper No. 17

Complete if Known

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(use as many sheets as necessary)
MAY 24 2002

Sheet

of

2

Application Number

09/274,430

Filing Date

March 22, 1999

First Named Inventor:

Michel Barrow

Group Art Unit

2841

Examiner Name

~~David A. Foster~~

Attorney Docket Number

042390P3495C2

U.S. PATENT DOCUMENTS

[illegible]

FOREIGN PATENT DOCUMENTS

[illegible]Examiner
Signature

Date Considered

09/09/02

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard S.3). ⁴For Japanese patent documents, the indication of the year of reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO:** Assistant Commissioner for Patents, Washington, DC 20231.

SEND TO: Paper No. 22

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

MAY 24 2002

848
CAB
USE

Complete if Known

Application Number	09/274,430
Filing Date	March 22, 1999
First Named Inventor:	Michael Barrow
Group Art Unit	2841
Examiner Name	David A. Foster John B. Vignesh
Attorney Docket Number	042390P3495C2

Sheet 1 of 2

PATENT & TRADEMARK OFFICE

OTHER ART - NO PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
JBV		Bruce Freyman et al. "Surface Mount Process Technology for Ball Grid Array Packaging", Surface Mount International, August 29-September 2, 1993, Amkor Electronics Inc., San Jose, California, pgs 81-85	
JBV		Johnathan L. Houghten "Plastic Ball-Grid Arrays Continue to Evolve", Electronic Design Magazine, February 6, 1995, pgs 141-146, Vol. 43, No. 3, Penton Publishing	
JBV		LSI Logic Corporation, Package Selector Guide 1994-1995, Second Edition, Milpitas, California	
JBV		LSI Logic Corporation, Package Selector Guide 1994-1995 Errata	
JBV		Semiconductor Group Package Outlines Reference Guide, Texas Instruments Incorporated, Plastic Ball Grid Array Drawings, 1995	

Examiner Signature	John B. Vignesh	Date Considered	09/09/02
--------------------	-----------------	-----------------	----------

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

¹Unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Page No. 22